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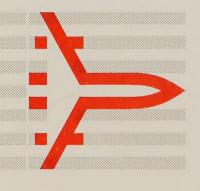


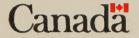


Personnel Licensing Handbook Volume 2

Aircraft Maintenance Engineer and Air Traffic Controller

THIRD EDITION March 1991







Personnel Licensing Handbook Volume 2

Aircraft Maintenance Engineer and Air Traffic Controller

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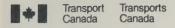
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Those persons who certify or control aircraft in Canada are required under Part IV of the Air Regulations to hold a licence appropriate to their duties. The qualifications relating to Aircraft Maintenance Engineer and Air Traffic Controller Licences are set forth in this Volume of the Personnel Licensing Handbook which is published under the authority of the Minister of Transport and pursuant to Subsection 403(2) of the Air Regulations.

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PERSONNEL LICENSING HANDBOOK

VOLUME 2

AIRCRAFT MAINTENANCE ENGINEER AND AIR TRAFFIC CONTROLLER LICENCES

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FOREWORD

Personnel Licensing Handbook

Volume 2 - Aircraft Maintenance Engineer and Air Traffic Controller Licences

Those persons who certify or control aircraft in Canada are required under Part IV of the Air Regulations to hold a licence appropriate to their duties. The qualifications relating to Aircraft Maintenance Engineer and Air Traffic Controller Licences are set forth in this Volume of the Personnel Licensing Handbook which is published under the authority of the Minister of Transport and pursuant to subsection 403(2) of the Air Regulations.

The holder of an Aircraft Maintenance Engineer Licence may exercise the privileges of the licence provided that the period of validity as determined from the licence has not expired and the recency of experience requirements have been met.

An Air Traffic Controller Licence includes an attachment thereto which is the Licence Validation Certificate. The holder of an Air Traffic Controller Licence may exercise the privileges of the licence, provided that the period of validity as determined from the Licence Validation Certificate has not expired.

Throughout the Handbook, references are made to various Department of Transport publications. The source and cost of these publications are set forth in the List of Civil Aviation Publications (TP 3680E) which may be obtained free of charge from:

Transport Canada AANDHD Ottawa, Ontario, Canada K1A 0N8

Weldon R. Newton
Director General
Aviation Regulation



PART I

AIRCRAFT MAINTENANCE ENGINEER LICENCE

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PART I

AIRCRAFT MAINTENANCE ENGINEER LICENCE

CHAPTER 1

GENERAL REQUIREMENTS

1. Applicability

This chapter prescribes the requirements for the issue, endorsement and renewal of Aircraft Maintenance Engineer (AME) Licences issued under Part IV of the <u>Air Regulations</u>.

2. Definitions

For the purpose of this part:

- (a) "AME" means the holder of a valid Canadian Aircraft Maintenance Engineer Licence, issued in accordance with this part.
- (b) "Applicant" means an applicant for the issue, endorsement or renewal of an Aircraft Maintenance Engineer licence.
- (c) "Avionics systems" means aircraft electrical, electronic and instrument systems, and includes the electrical and electronic elements of other aircraft systems.
- (d) "Conforming state" means a state which conforms to the standards of Annex 1 to the Convention of International Civil Aviation signed at Chicago on December 7, 1944.
- (e) "Designator" means a code endorsed on an AME licence to indicate a licence rating.
- (f) "Dynamic components" means parts of an aircraft power drive system, and includes gearboxes and rotor assemblies.
- (g) "Group" means a number of types of aeronautical products, which have similar technical characteristics.
- (h) "Limitation" means an endorsement on an AME licence which restricts the scope of privileges conferred by the licence.

- (i) "Maintenance" means direct involvement in the repair, overhaul, inspection, modification and replacement of parts of aeronautical products, but does not include servicing.
- (j) "Propulsion systems" means aircraft engines, propellers and dynamic components.
- (k) "Rating" means an endorsement on an AME licence, indicating the types of aircraft or other aeronautical products to which the licence privileges apply.
- (l) "Servicing" means cleaning, lubrication and the replenishment of fluids, and includes pre-flight inspections and other technical activities which form part of normal flight crew duties.

3. <u>International Civil Aviation Organization (ICAO)</u>

Canada is a contracting state to the International Civil Aviation Organization (ICAO). Canadian AME licences issued under Part IV of the <u>Air Regulations</u> conform to the standards outlined in Annex I to the ICAO convention.

4. Notices to Aircraft Maintenance Engineers and Aircraft Owners (N-AME-AO)

To enable timely amendment, AME licensing information which is subject to frequent change is published in Notices to Aircraft Maintenance Engineers and Aircraft Owners (N-AME-AO). Where this part refers to a N-AME-AO, the reference applies to the current issue of the notice, as amended from time to time. It is the responsibility of AMEs and applicants to verify that the notices consulted are the latest issue.

5. <u>Inquiries</u>

Inquiries regarding AME licensing should be directed to the nearest Department of Transport regional or district office. These offices are listed in N-AME-AO 1/89.

6. Ratings

The ratings of an AME licence are indicated by designators endorsed on the licence. The privileges of the AME may be exercised in respect of the aeronautical products listed against those designators in N-AME-AO 4/89.

Ratings will normally be granted only for aircraft presently on the Canadian civil register. Ratings for aircraft not on the civil register may be granted in special circumstances at the discretion of the Superintendent, AME Licensing.

7. <u>Categories</u>

Ratings are divided into categories, according to the kinds of aeronautical product they include, as follows:

General Maintenance: Category M - Aircraft

Specialized Maintenance: Category E - Avionics Systems

Category S - Structures

Category P - Propulsion Systems

8. Privileges

An AME may sign a maintenance release for any maintenance performed on aeronautical products of the types indicated by the licence ratings, and may exercise other privileges as specified in the Airworthiness Manual.

9. <u>Limitations</u>

Where an AME does not meet all the requirements for a particular rating, the licence will be endorsed with a limitation which restricts the AME to those privileges for which the AME is qualified.

10. Requirements

N-AME-AO 4/89 lists the aeronautical product groups and contains tables which set forth the requirements applicable to each group. Applicants must meet those requirements as specified below:

(a) Basic Training

Where the table of requirements indicates a need for basic training, applicants, for initial issue or for additional ratings in a new category, must have satisfactorily completed an acceptable course of training in basic aircraft maintenance or basic electronics, as applicable. Information regarding these courses is contained in N-AME-AO 2/89.

(b) Post Graduate Training

Where the table of requirements indicates a need for type or group training, the applicant must have satisfactorily completed a course of training approved by the Department of Transport. A list of approved courses is contained in N-AME-AO 3/89.

(c) Experience

Applicants must have acquired the amount and type of maintenance experience specified in the table of requirements. Experience may be gained either on a full time or part time basis. Applicants who claim part time experience must produce original records, substantiating the actual hours worked. When assessing experience claims, 1 year shall consist of 1800 working hours. No credit will be allowed for more than 150 hours experience in any one month.

Where the table of requirements specifies a need for experience in a particular group and the applicant has been simultaneously employed in a number of different groups, the time claimed will be apportioned between the groups. Where an applicant claims time as solely devoted to a specific group, that time period may not be subsequently credited toward any other group.

(d) Recency of Experience

The applicant must have spent at least 6 of the immediately preceding 24 months in the performance, management, instruction or full time study of aviation maintenance, or as a flight engineer. At least 6 months of the applicant's total experience must have been acquired while working in accordance with Canadian Civil Air Regulations.

(e) Examinations

Applicants must successfully complete all the examinations specified in the applicable table of requirements. In the case of applications for additional ratings, credit will be given for the examinations passed in respect of the ratings already held. Information regarding the examinations syllabi, and guidance on preparing for the examinations, are contained in the Aircraft Maintenance Engineer Study and Reference Guide, TP 3043E.

(f) Maintenance Tasks

Applicants for initial issue of a licence, or for additional ratings in a new group, must provide proof of having performed a representative selection of maintenance tasks over the full range of applicable systems or structures. The tasks must be carried out under the direct supervision of an AME, and certified in accordance with Chapter 575 of the Airworthiness Manual.

The supervising AME must certify the completion of each task, together with the date, the aircraft type, registration mark, or component serial number, as applicable. Certification will indicate that in relation to the task, the applicant is competent to:

- (i) identify the correct standard,
- (ii) select the proper tools,
- (iii) perform the task correctly without supervision, and
- (iv) complete the necessary documentation.

Examples and suggested numbers of suitable tasks are listed in Appendix B.

(g) Age

Prior to issue of the licence, the applicant shall have attained the age of 21 years.

11. AME Log Book

The record of tasks completed, and details of the applicant's training and experience, may be recorded in an AME log book, Transport Canada publication - TP 9761E (English) or TP 9761F (French). Persons who sign the employment and training sections of the log book shall also be responsible for the accuracy of statements in the book regarding tasks completed in their employment. AME log books are available, upon receipt of a cheque or money order made payable to the Receiver General for Canada for the amount of \$10.00 each, from:

Transport Canada AANDHD Ottawa, Ontario K1A 0N8 Telephone: (613) 991-9970

12. Exemptions

Applicants for initial issue who hold an equivalent licence issued by a conforming state will be exempt from the requirements for maintenance tasks and Canadian civil experience.

13. Approved Courses

For licensing purposes, the Department of Transport grants approval to Aircraft Maintenance Engineer training courses of the following kinds:

- (a) basic training courses, which entitle a graduate to a reduction in the total experience requirement for an AME Licence;
- (b) conversion courses, which entitle a graduate to a reduction in the group, fixed wing or rotary wing experience requirements for certain ratings; and
- (c) type courses, which are a mandatory requirement for certain licence ratings.

N-AME-AO 2/89 contains lists of approved basic training and conversion courses. N-AME-AO 3/89 contains a list of approved type courses. Other courses may be accepted by the Department of Transport if they can be shown to meet comparable standards. Details of the standards applicable to approved training courses are contained in Appendix C.

14. Application Procedures

Applications shall be submitted on Form 26-0028, which is available upon request from Department of Transport offices. All three copies of the form must be submitted to the appropriate regional or district office. The AME log book and other records relating to training and experience, must be attached. Examples of completed application forms are contained in Appendix A.

Applicants for initial issue must also provide proof of citizenship and age. For these purposes, the following documents will be acceptable:

- (a) for citizenship:
 - (i) a birth or baptismal certificate issued in Canada or in a state whose citizens do not require a passport to enter Canada;
 - (ii) a valid passport;
 - (iii) a citizenship certificate;
 - (iv) a Canadian Immigration Record and Visa, Form IMM 1000; or
 - (v) a valid aviation personnel licence showing the citizenship of the holder and issued by the state of which he is a citizen;
- (b) and for age:
 - (i) a Canadian citizenship certificate;

- (ii) a birth or baptismal certificate; or
- (iii) a passport.

When it is not possible to provide documentary proof of age or citizenship, a statutory declaration may be accepted in lieu.

All supporting documents must be either original documents or be notarized as certified true copies of the original documents. They shall not be in abbreviated or coded form. Supporting documents must be in either English or French. Translation from other languages shall be the applicant's responsibility.

Following a review of the application and supporting documents, original documents will be returned, and the applicant will be advised of which examinations may be attempted.

15. Application Time Limit

An application will remain valid for 12 months from the date of its approval by the Department of Transport. All requirements must be met within this period. If all the requirements are not met within 12 months, credit for any successfully completed examinations will be forfeited and a new application must be submitted. The new application will be assessed against the requirements which are in effect at the time it is received.

16. Admission to Examinations

Applicants who meet the basic training requirement and have at least 50% of the applicable group experience, may attempt the examinations for an AME licence up to 6 months prior to obtaining the necessary total experience. If successful, they will be issued a licence upon submission of proof that the remainder of the required experience has been obtained.

Applicants who fail an examination on the first attempt will not be examined again on the same subject sooner than 30 days following the failure. Applicants who fail an examination on the second or subsequent attempt will not be examined again on the same subject sooner than 6 months following the failure.

17. Conduct of Examinations

Examination candidates shall comply with the instructions of the invigilator. Except as expressly permitted by the invigilator, applicants shall not:

(a) copy, remove, or make any marks on an examination paper, or on any supporting documentation;

- (b) give to or receive from any other person a copy of an examination paper or supporting documentation;
- (c) give assistance to or receive assistance from any other person during an examination; or
- (d) use any type of written or electronic reference material, other than material supplied by the invigilator.

Applicants may use a simple electronic calculator if they clear all memory in the presence of the invigilator both before and after the examination.

Failure to comply with these rules of conduct will be grounds for declaring the examination void and the candidate may be prohibited from attempting an AME examination for up to one year.

18. <u>Licence Renewal</u>

Unless cancelled or suspended, an AME licence will remain in force until the "valid to" date shown on the licence. The normal period of validity is 5 years. To qualify for renewal, the licence holder must show compliance with the currency of experience requirements set forth in Section 19.

Application for renewal may be made by submission of a completed Form 26-0028 during the 60 days immediately preceding expiry. The licence may also be renewed at the time of endorsement for additional ratings or change of address. Details of the training and experience gained since the last application must be entered in the appropriate section of the form.

19. Currency of Experience

No AME shall exercise any of the privileges of the licence, or shall be entitled to renewal of the licence, unless within the preceding 24 months, the AME:

- (a) has spent at least 6 months in the performance, management, instruction or full-time study of aviation maintenance;
- (b) has spent at least 6 months as a flight engineer; or
- (c) has successfully completed a Department of Transport examination on the Air Regulations.

An AME who is not in compliance with (a) or (b) may regain compliance by working under supervision until the required experience has been obtained. Alternatively, the AME may attempt an examination on the Air Regulations in accordance with (c) upon submission of an application for renewal on Form 26-0028, annotated "no recent experience" in the "training and experience" section. An AME who attempts the Air Regulations Examination in accordance with (c) and fails, will not be entitled to renewal until the examination has been successfully completed.

20. Expiry of Licence

An AME whose licence has been expired for 2 years or less will be issued with a new licence upon meeting the requirements for renewal. An AME whose licence has been expired for more than 2 years will be issued with a new licence upon meeting all the requirements for initial issue. Licences issued in accordance with this section will be valid from the date upon which all the requirements are met (i.e. they will not be backdated).

21. Change of Address

AMEs shall notify the Department of Transport of any change of permanent address within 7 days following the change. Notification may be made by submission of Form 26-0028, showing the new address, and annotated "change of address" in the space entitled "category and ratings requested".

22. Change of Name

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Date _				Sign	ed	(As	sume	i Name)		11	

23. Change of Citizenship

The licence of an AME whose citizenship has changed may be replaced upon submission of Form 26-0068, annotated "Change of citizenship" in the area marked "Category and Ratings requested". The application must be accompanied by proof of the new citizenship.

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24. Replacement of Licence

A lost, damaged, or destroyed following declaration:	AME licence may be replaced upon submission of the
"I am the holder of AME said document has been lost/de	Licence number I declare that the stroyed/damaged* and I hereby apply for a replacement.
	H H
Date	Signature of Applicant

If available, the damaged licence should be returned for cancellation at the time of application for a replacement.

25. Charges

The charges applicable to AME licences are set forth in section 820 of the <u>Air Regulations</u>. In case of conflict, the schedule of charges in the <u>Air Regulations</u> will prevail.

^{*}State which.

APPENDIX "A"

DEPARTMENT OF TRANSPORT

AIRCRAFT MAINTENANCE ENGINEER LICENCE APPLICATION

MINISTÈRE DES TRANSPORTS

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DEPARTMENT OF TRANSPORT

AIRCRAFT MAINTENANCE ENGINEER LICENCE APPLICATION

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DEPARTMENT OF TRANSPORT

AIRCRAFT MAINTENANCE ENGINEER LICENCE APPLICATION

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APPENDIX "B"

TYPICAL ACCEPTABLE EXPERIENCE

BY ATA CODE

ATA: 05 (Time limits/Maintenance Checks)

100 hour check (small aircraft)
"B" or "C" check (transport category)
Review records for compliance with ADs
Inspection following heavy landing
Inspection following lightning strike

ATA: 06 (Dimensions/Areas)

Locate component(s) by station number Perform symmetry check

ATA: 07 (Lifting and Shoring)

Jack aircraft nose or tail wheel Jack complete aircraft Sling or trestle major component

ATA: 08 (Leveling/Weighting)

Level aircraft
Weigh aircraft
Prepare weight and balance amendment
Check aircraft against equipment list

ATA: 09 (Towing and Taxiing)

Tow aircraft Taxi aircraft

ATA: 10 (Parking and Mooring)

Tie down aircraft Park, secure and cover aircraft Position aircraft in dock Secure rotor blades

ATA: 11 (Placards and Markings)

Check aircraft for correct placards Check aircraft for correct markings

ATA: 12 (Servicing)

Refuel aircraft
Defuel aircraft
Check tire pressures
Check oil level
Check hydraulic fluid level
Check accumulator pressure
Charge pneumatic system
Grease aircraft
Connect ground power
Service toilet/water system
Perform pre-flight check

ATA: 18 (Vibration/Noise Analysis)

Analyses helicopter vibration Analyse noise spectrum

ATA: 21 (Air Conditioning)

Replace combustion heater
Replace outflow valve
Replace vapor cycle unit
Replace air cycle unit
Replace cabin blower
Replace heat exchanger
Replace pressurization controller
Clean outflow valves
Check operation of air conditioning
Check pressurization system
Troubleshoot faulty system

ATA: 22 (Auto Flight)

Install servos
Rig bridle cables
Replace controller
Replace amplifier
Check operation of auto-pilot
Check operation of auto-throttle
Check operation of yaw damper
Check and adjust servo clutch
Perform autopilot gain adjustments
Perform Mach trim functional check
Troubleshoot faulty system

ATA: 23 (Communications)

Replace VHF com unit
Replace HF com unit
Replace existing antenna
Install new antenna
Replace static discharge wicks
Check operation of radios
Perform antenna VSWR check
Perform SELCAL operational check
Perform operational check of PA system
Check audio integrating system
Repair coaxial cable
Troubleshoot faulty system

ATA: 24 (Electrical Power)

Charge lead/acid battery
Charge ni-cad battery
Check battery capacity
Replace cells
Deep-cycle ni-cad battery
Replace generator
Replace switches
Replace circuit breakers
Adjust voltage regulator
Amend electrical load analysis report
Repair/replace electrical feeder cable
Troubleshoot faulty system

ATA: 25 (Equipment/Furnishings)

Replace carpets
Replace crew seats
Replace passenger seats
Check inertia reels
Check seats/belts for security
Check emergency equipment
Check ELT for compliance with regulations
Repair toilet waste container
Repair upholstery
Change cabin configuration

ATA: 26 (Fire Protection)

Check fire bottle contents
Check operation of warning system
Check cabin fire extinguisher contents
Check lavatory smoke detector system
Install new fire bottle
Replace fire bottle squib
Troubleshoot faulty system

ATA: 28 (Fuel)

Replace booster pump
Replace fuel selector
Replace fuel tank cells
Check filters
Flow check system
Calibrate fuel quantity gauges
Check operation feed/selectors
Troubleshoot faulty system

ATA: 27 (Flight Controls)

Replace horizontal stabilizer
Replace elevator
Replace aileron
Replace rudder
Replace trim tabs
Install control cable and fittings
Replace flaps
Replace powered flying control unit
Replace flap actuator
Adjust trim tab
Adjust control cable tension
Check range and sense of movement
Check assembly and locking
Troubleshoot faulty system

ATA: 29 (Hydraulics)

Replace engine driven pump
Replace standby pump
Replace accumulator
Check operation of shut off valve
Check filters
Check indicating systems
Perform functional checks
Troubleshoot faulty system

ATA: 30 (Ice and Rain Protection)

Replace fluid tank
Replace pump
Replace timer
Replace distributor
Install wiper motor
Repair de-icing boot
Adjust brush block
Check operation of systems
Troubleshoot faulty system

ATA: 31 (Indicating/Recording Systems)

Replace flight data recorder
Replace cockpit voice recorder
Replace clock
Replace panel vibrator
Replace master caution unit
Perform FDR calibration
Perform FDR data retrieval
Troubleshoot faulty system

ATA: 32 (Landing Gear)

Build up wheel Replace main wheel Replace nose wheel Replace shimmy damper Rig nose wheel steering Replace shock strut seals Replace brake unit Replace brake control valve Bleed brakes Test antiskid unit Test gear retraction Change bungees Install floats Install skis Adjust micro switches Charge struts Troubleshoot faulty system

ASTA: 33 (Lights)

Repair/replace rotating beacon Repair/replace landing lights Repair/replace navigation lights Repair/replace interior lights Repair/replace emergency lighting Check emergency lighting system Troubleshoot faulty system

ATA: 34 (Navigation)

Calibrate compass
Replace airspeed indicator
Replace altimeter
Replace air data computer
Replace VOR unit
Replace ADI
Replace HSI
Check pitot static system for leaks
Check operation of directional gyro
Functional check weather radar

Functional check doppler
Functional check TCAS
Functional check DME
Functional check ATC Transponder
Functional check flight director system
Functional check intertial navigation system
Check calibration of ADF system
Update flight management system
Check calibration of altimeter system
Troubleshoot faulty system

ATA: 35 (Oxygen)

Inspect on board oxygen equipment Purge and recharge oxygen system Replace regulator Replace oxygen generator Test crew oxygen system Check oxygen mask deployment Troubleshoot faulty system

ATA: 36 (Pneumatic Systems)

Replace filter
Replace compressor
Recharge desiccator
Adjust regulator
Check for leaks
Troubleshoot faulty system

ATA: 37 (Vacuum Systems)

Replace vacuum pump Check/Replace filters Adjust regulator Troubleshoot faulty system

ATA: 38 (Water/Waste)

Replace water pump
Replace faucet
Replace toilet pump
Troubleshoot faulty system

ATA: 45 (Central Maintenance System)

Retrieve data from CMU Replace CMU Perform BITE check Troubleshoot faulty system

ATA: 49 (Airborne Auxiliary Power)

Install APU
Inspect hot section
Troubleshoot faulty system

ATA: 51 (Structures)

Sheet metal repair
Fibre glass repair
Wooden repair
Fabric repair
Recover fabric control surface
Treat corrosion
Apply protective treatment

ATA: 52 (Doors)

Rig/Adjust locking mechanism Adjust air stair system Check operation of emergency exits Test door warning system Troubleshoot faulty system

ATA: 56 (Windows)

Replace window Repair transparency

ATA: 57 (Wings)

Skin repair Recover fabric wing Replace tip Replace rib Check incidence/rig Assemble propeller Replace propeller Replace governor Adjust governor Static functional checks Check during ground run Check track Check setting of micro switches Dress out blade damage Dynamically balance prop Overhaul governor Overhaul propeller Troubleshoot faulty system

ATA: 62 (Main Rotors)

Install rotor assembly
Replace blades
Replace damper assembly
Check track
Check static balance
Check dynamic balance
Troubleshoot

ATA: 63 (Rotor Drive)

Replace mast
Replace drive coupling
Replace clutch/freewheel unit
Replace drive belt
Install main gearbox
Overhaul main gearbox
Check gearbox chip detectors

ATA: 64 (Tail Rotors)

Install rotor assembly Replace blades Troubleshoot

ATA: 65 (Tail Rotor Drive)

Replace bevel gearbox Replace universal joints Overhaul bevel gearbox Install drive assembly Check chip detectors

ATA: 67 (Rotorcraft Flight Controls)

Install swash plate
Install mixing box
Adjust pitch links
Rig collective system
Rig cyclic system
Rig anti-torque system
Check assembly and locking
Check operation and sense
Troubleshoot faulty system

ATA: 71 (Power Plant)

Build up ECU Replace engine Replace scat hose Repair cooling baffles Repair cowling Adjust cowl flaps Repair faulty wiring Troubleshoot

ATA: 72 (Piston Engines)

Remove/Install reduction gear
Overhaul engine
Top overhaul
Check crankshaft run-out
Check tappet clearance
Check compression
Extract broken stud
Install helicoil
Perform ground run
Establish/Check reference RPM
Troubleshoot

ATA: 72 (Turbine Engines)

Replace module
Hot section inspection
Engine ground run
Establish reference power
Trend monitoring/gas path analysis
Troubleshoot

ATA: 73 (Fuel and Control, Piston)

Replace engine driven pump
Adjust AMC
Adjust ABC
Install carburetor/injector
Adjust carburetor/injector
Clean injector nozzles
Replace primer line
Check carburetor float setting
Troubleshoot faulty system

ATA: 73 (Fuel and Control, Turbine)

Replace FCU
Replace engine driven pump
Clean/Test fuel nozzles
Clean/Replace filters
Adjust FCU
Troubleshoot faulty system

ATA: 74 (Ignition Systems, Piston)

Change magneto
Change ignition vibrator
Change plugs
Test plugs
Check H.T. leads
Install new leads
Check timing
Check system bonding
Troubleshoot faulty system

ATA: 74 (Ignition Systems, Turbine)

Check glow plugs/ignitors Check H.T. leads Check ignition unit Replace ignition unit Troubleshoot faulty system

ATA: 76 (Engine Controls)

Rig thrust lever
Rig RPM control
Rig mixture HP cock lever
Rig power lever
Check control sync
Check assembly and locking
Check range and sense
Adjust pedestal micro-switches
Troubleshoot faulty system

ATA: 77 (Engine Indicating)

Replace engine instruments(s) Replace oil temperature bulb Replace thermocouples Check calibration Troubleshoot faulty system

ATA: 78 (Exhaust, Piston)

Replace exhaust gasket Inspect welded repair Pressure check cabin heater muff Troubleshoot faulty system

ATA: 78 (Exhaust, Turbine)

Change jetpipe Change shroud assembly Install trimmers

ATA: 79 (Oil)

Change oil
Check filter(s)
Adjust pressure relief valve
Replace oil tank
Replace oil pump
Replace oil cooler
Replace firewall shut off valve
Perform oil dilution
Troubleshoot faulty system

ATA: 80 (Starting)

Replace starter
Replace start relay
Replace start control valve
Check cranking speed
Troubleshoot faulty system

ATA: 81 (Turbines, Piston Engines)

Replace PRT
Replace turbo-blower
Replace heat shields
Replace waste gate
Adjust density controller

ATA: 82 (Engine Water Injection)

Replace water/methanol pump Flow check water/methanol system Adjust water/methanol control unit Check fluid for quality Troubleshoot faulty system

ATA: 83 (Accessory Gear Boxes)

Replace gearbox Replace drive shaft Check chip detector

APPENDIX "C"

APPROVED TRAINING ORGANIZATIONS

1. Purpose

To provide guidance for the establishment of aircraft maintenance training courses.

2. Reference Regulatory Requirements

Personnel Licensing Handbook, Volume 2, Part I.

3. Applicability

This advisory is applicable to basic training, conversion and aircraft type courses. It is not applicable to approved maintenance organization training programs, except in the cases where the approved maintenance organization program provides training towards an AME licence.

4. Background

A number of different Department of Transport (DOT) course approvals are available. Dependent upon the type of approval granted, successful completion of an approved course will either provide credit towards the experience requirements set forth in the Personnel Licensing Handbook, Volume 2, or meet the mandatory training requirements for a particular aircraft type. Schools which meet the standards outlined in this advisory will be issued a DOT Certificate of Approval.

These establishments will be required to produce a training control manual describing their policies and procedures in accordance with the standards outlined in this document. Approved training organizations will be subject to surveillance and periodic audits to maintain approval.

5. <u>Training Categories</u>

There are three main categories of training approvals:

(a) Basic Training Courses

These courses are intended for the initial training of students, prior to entering the aviation industry. The courses, which may be in either general aircraft or avionics maintenance, provide the student with a basic knowledge of theory, standard practices, and an understanding of regulatory requirements. Completion of an approved basic course may entitle an applicant for an AME licence to credit it towards the total experience requirement.

(b) Conversion Courses

These courses are intended for aircraft maintenance personnel who have either acquired practical maintenance experience in the aviation industry, or have successfully completed a basic training course. The courses provide an already skilled individual with knowledge and hands-on experience in a particular field of maintenance, to offset some or all of the experience required for a particular group or rating (e.g. rotorcraft or structural repair).

(c) Aircraft Type Courses

These courses are intended to provide experienced aircraft maintenance personnel with the necessary level of knowledge to sign a maintenance release for the aircraft type concerned. The courses meet the mandatory training requirement for endorsement of the type on an AME licence. Type courses conducted by approved maintenance organizations, in accordance with Chapter 573 of the Airworthiness Manual, which meet the requirements of this document, may also qualify for approval under this heading.

6. Application for Approval

Application for approval of training courses should be made to the regional office in which the training organization is located. In the case of organizations whose facilities are located outside Canada, application should be made to the Superintendent, AME Licensing, Airworthiness Branch, Transport Canada, Ottawa.

Each type of course will be dealt with separately in its own section of this advisory, but certain requirements are common to all forms of approved training, as outlined in section 7.

7. Common Requirements

Organizations requesting approval must prepare a training control manual in accordance with this document and submit two copies of the appropriate DOT office. The training control manual must include a system for amendments. Copies shall be serialized and shall include a list of holders of the manual, by serial numbers. The training control manual must clearly describe policies, procedures and pertinent data related to the following, as well as the specific requirements related to the appropriate section 8, 9 or 10.

(a) Quality Control System

A quality control system must be established to ensure that the policies and procedures described in the training control manual are effectively in place. The school shall appoint an individual with the duties and responsibilities to ensure the integrity of this program. This individual shall have a minimum of six years in the maintenance of aircraft, experience in training and be acceptable to the DOT.

(b) Curriculum

The school must have in place policies and procedures to ensure that curriculum objectives have been met. Where the department has published curriculum guidelines for the type of training involved, the curriculum must meet those requirements.

The curriculum must include:

(i) Details of the allotted numbers of hours per subject, and the course objectives, indicating level of competency and skill to be achieved by the student.

(ii) Details of practical projects to be completed by individuals or groups, either at the facility or in the field.

(iii) Ratio of theory to hands-on shop time.

(iv) A schedule of the examinations or tests to be given.

The school must adhere to the approved curriculum, which may not be changed without prior approval from the DOT.

(c) Record Keeping

The school must keep a current record for each student enrolled, including attendance and grades, and retain this record for a period of not less than 5 years from the date of graduation. These records shall be made available to the DOT upon request.

(d) Attendance

The training schedule must ensure that students do not exceed eight hours of training (or combined duty/training) in any one day, or more than six days or forty hours of duty/training in any seven day period. The only exceptions to these requirements are in those situations where, due to equipment availability, the students would otherwise miss an opportunity for access to specific equipment (e.g. simulator, aircraft). Exceptions of this nature must be approved by the DOT and specified in the training control manual.

The school must accurately document the student's attendance, ensuring that the individual's presence is recorded and controlled for each class, shop or laboratory.

Students missing more than 5% of the course curriculum through absence will not qualify for any credit under the DOT course approval, unless the lost time is made up through documented supplementary studies, which must include theory, workshop and laboratory time, equivalent to that missed from the original program. The training control manual must contain an explanation of the means by which a student's attendance may be verified.

Students who graduate from a basic training course but who have missed more than 5% of the course curriculum through absence, while not qualifying for any experience credit, may still qualify as having completed an acceptable course in avionics or aircraft maintenance.

(e) Examination

Examinations must be developed, in accordance with policies and procedures to ensure students have achieved the course objectives. The examinations may be written tests or a combination of written, oral and practical tests. The passing grade should normally be 70%. Other grades may be acceptable where the school can demonstrate that the grades are appropriate and effective.

The student must attain a passing grade in each part of the course curriculum in order to qualify for the appropriate DOT credit. The school must submit sample copies of examination questions, which should reflect all subjects taught, and be representative of the level of difficulty of the examination as a whole.

Students who complete a basic training course, but are unable to achieve a passing grade in the final examination, will not be entitled to any credit toward the experience requirement for an AME licence, but may still be accepted as having completed an acceptable course, subject to a statement by the training organization that the student completed the curriculum.

(f) Graduation Certificates

The school must provide a certificate of graduation to each student who successfully completes an approved course. This certificate must include:

- (i) the name and location of the school,
- (ii) the type of training accomplished,
- (iii) the full name of the student,
- (iv) the date of course completion,
- (v) an embossed raised seal,
- (vi) the signature of authorized officials, and
- (vii) Transport Canada's course approval number.

Samples of certificates should be included in the training control manual (marked "sample" diagonally across the page in red ink). The organization must provide a list of the names and signatures of all individuals authorized to sign certificates, forms and letters.

(g) Instructors

The school must provide an appropriate number of instructors, who are licensed in aircraft maintenance or have extensive experience in an appropriate specialty, and are trained in instructional techniques. The ratio of instructors to students should be appropriate to the type of training conducted, as indicated in the applicable section of this advisory.

Specialist instructors need not have experience in aircraft maintenance, however these individuals may not give instruction in aircraft maintenance.

The school must institute policies and procedures to ensure the evaluation of instructors, not only addressing teaching techniques, but also technical accuracy and conformance of presentations to course objectives.

The structured professional development program must be in place to ensure appropriate up-dating of faculty knowledge and expertise on a continuing basis (ideally this program should be tied to instructor evaluation).

(h) Organizational Chart

The training control manual must include an organizational chart, showing the responsibility and reporting levels of each member of the faculty. Where an individual reports to more than one manager, the organizational chart must make clear which manager is responsible for which function. The training control manual must describe the duties and responsibilities of the reporting levels listed on the organizational chart.

(i) Facilities

The training control manual must include a simple floor plan of the facility, showing the location of offices, classrooms, shops, etc. The facility must meet the following minimum requirements as applicable to the training provided, and have proper heating, lighting and ventilation to accommodate the maximum number of students expected to be taught at any one time.

Classrooms must be separated from workshops, labs, and other specialty areas. The following equipment must be available:

- (i) proper seating and a suitable writing surface for each student (e.g. desk or table and chair),
- (ii) proper writing surface for the instructor (e.g. blackboard, flip chart and/or magic marker board),
- (iii) podium and/or desk for the instructor,
- (iv) overhead projector and screen,
- (v) slide film projector, video player and monitor,
- (vi) wall charts, and
- (vii) visual training aids, as required by the course subject.

The school must have a technical library, in a controlled environment. Students must have reasonable access to this area including all the material. The school must have an adequate supply of materials, shop equipment and tools (including special tools) and miscellaneous equipment used in the maintenance of aircraft.

Tools and equipment must be appropriate for the purpose for which they are to be used and must be kept in satisfactory working condition. The school must guarantee the availability of any other equipment utilized (i.e. in any facility other than their own). This may be done by a letter of agreement or contract from the applicable organization, stating to what extent the school has access to their equipment, and signed by an appropriate official.

8. <u>Basic Training Requirements</u>

(a) Prerequisites

Each training organization should establish procedures for student admission which ensures that the student has the required background knowledge to assimilate the course content.

(b) Curriculum

The curriculum for a basic training course must cover the subjects and items prescribed in the applicable DOT Curriculum Guide (available upon request).

(c) Equipment

(i) General Aircraft

The school must have at least one aircraft (or one fixed and one rotary wing in the case of schools offering both fixed and rotary wing training) appropriate to the course curriculum. These aircraft, (hereafter referred to as the primary aircraft) must be of a type approved by a contracting state

for civil operation, and must be complete in all aspects, including engines, propellers or rotor systems, instruments, radios, landing gear, landing lights and other equipment and accessories. The primary aircraft need not be in an airworthy condition; however, they must be complete assemblies, that can be used in all aspects of training up to and including ground runs.

The school must have a variety of airframe structures, airframe systems and components; power plants, power plant systems and components of a quality and type suitable to complete the practical projects required by the course curriculum. These training aids on which instruction is to be given, and practical work experience gained, must be so diversified as to show the different methods of construction, assembly, inspection and operation which a student may be expected to encounter following graduation. There must be enough units so that not more than four students will work on any one unit at a time. If the aircraft used for instructional purposes have only simple systems, such as fixed landing gear, then training aids or operational mockups of the more complicated systems must be provided.

(ii) Avionics

The school must have at least one aircraft equipped with a comprehensive avionics package. The aircraft must be of a type approved by a contracting state for civil operation, and must be complete in all aspects, including engines, propellers or rotor systems, instruments, radios, landing gear, landing lights, and other equipment and accessories. The aircraft need not be in an airworthy condition; however, it must be a complete assembly, that can be used in all aspects of training up to and including ground runs, and functional tests.

The school must have a variety of airframe installed avionics systems and components, of a quality and type suitable to complete the practical projects required by the course curriculum. These training aids on which instruction is to be given, and practical work experience gained, must be so diversified as to show the different methods of construction, assembly, inspection and operation which a student may be expected to encounter following graduation. There must be enough units so that not more than four students will work on any one unit at a time. If the aircraft used for instructional purposes have only simple systems, then training aids or operational mock-ups of the more complicated systems must be provided.

(d) Facilities

(i) General Aircraft

The school must have policies and procedures in place to ensure that the shop facilities for basic training courses simulate as closely as possible the actual working environment of an aircraft operator.

The stores must be located in the training area and arranged to ensure proper separation from the work place. The stores area must be a typical aircraft store, including sections for receiving, storing (bonded and quarantine) and issuing of in-house certified parts and material. The

control of all calibrated tools, instruments and equipment should be handled and monitored from this area.

NOTE: This may be simulated to some extent, however, proper calibration must be accomplished for equipment to be used on aircraft and engines in a run-up condition.

The inflammable stores must be an enclosed space separate from other areas and include proper ventilation, sealed electrical systems, and liquid spill retention.

The hangar must be of sufficient size to contain the aircraft and equipment including tables, benches, jacks, stands, etc. and to permit the disassembly, inspection, etc., of the aircraft, engines and equipment.

The sheet metal section must have sufficient space to contain the equipment, required to fabricate and repair sheet metal, including tables, benches, break, bender, etc.

The woodworking and fabric section must be of sufficient size to contain equipment, including tables, benches, saws, sanders, joiners, etc., in order to fabricate and repair wood structure.

The battery section must be separate from the other work areas and be of sufficient size to contain two segregated areas including proper ventilation and sealed electrical systems, equipped to inspect, maintain and charge both ni-cad and lead acid batteries.

The painting section must be separate from the other work areas and be of sufficient size for doping and spray painting.

The cleaning/degreasing area must be provided in a separate, ventilated, space equipped with washtank and degreasing equipment.

The engine running area must be a separate space away from the work area. This may be in the form of an engine test cell or a tie-down area to run actual aircraft. In either case student safety must be assured.

The equipment and component sections must be provided with adequate equipment, including benches, stands, test equipment and special tools in order to disassemble, repair, assemble, test, service and inspect the following:

- (A) avionics,
- (B) electrical,
- (C) power plants (turbine),
- (D) fuels,

- (E) pneumatics and vacuum,
- (F) instruments: magnetic, gyro, pitot-static,
- (G) hydraulics,
- (H) helicopter powertrains, and
- (I) propellers.

(ii) Avionics

The school must have procedures in place to ensure that the shop facilities for basic training courses simulate, as closely as possible, the actual working environment of an aircraft operator.

The stores must be located in the training area and arranged to ensure proper separation from the work place. The stores area must be a typical aircraft store, including sections for receiving, storing (bonded and quarantine) and issuing of in-house certified parts and material. The control of all calibrated tools, instruments and equipment should be handled and monitored from this area.

NOTE: This may be simulated to some extent, however, proper calibration procedures must be established for equipment to be used on aircraft.

The hangar must be of sufficient size to contain the aircraft and equipment including tables, benches, jacks, stands, etc. and to permit the disassembly, inspection, etc., of the aircraft, engines and equipment.

The battery section must be separate from the other work areas and be of sufficient size to contain two segregated areas including proper ventilation and sealed electrical systems, equipped to inspect, maintain and charge both ni-cad and lead acid batteries.

The equipment and component sections must be provided with adequate equipment, including benches, stands, test equipment and special tools in order to disassemble, repair, assemble, test, service and inspect the following:

- (A) avionics,
- (B) electrical,
- (C) power plants,
- (D) pneumatics,
- (E) instruments: magnetic, gyro, pitot-static,
- (F) hydraulics,
- (G) flight controls, and
- (H) auto-pilots.

(e) Reference Material

The school must have procedures in place to ensure the following are available and maintained in an up-to-date amended status:

- (i) Aeronautics Act,
- (ii) Air Regulations,
- (iii) Air Navigation Orders,(iv) Airworthiness Manual,
- (v) Personnel Licensing Handbook,
- (vi) FAA A.D.'s (including bi-weekly supplements),
- (vii) Canadian Summary of A.D.s,
- (viii) A.C. 43-13-1A & 2A,
- (ix) type certificates and supplementary type certificates for the primary training aircraft,
- (x) a complete set of manuals (maintenance, overhaul, structural repair, illustrated parts catalogues, service bulletins and service instructions, etc.) for the primary training aircraft, and
- (xi) one copy of each text book required for the course of study.

(f) Class Size

Classes should normally consist of not more than 25 students. When carrying out practical tasks in the work area, sufficient additional instructors or qualified supervisors should be available, normally in the ratio of 1 supervisor to each 6 students.

NOTE: In the case where aircraft with valid C of A are used for training purposes, the school must institute policies and procedure to ensure the aircraft are in an airworthiness condition prior to flight.

(g) Advisory Committee

The school must have in place an advisory committee adequately representing the industry. The training control manual must describe the duties and responsibilities of this committee. The advisory committee's primary role should be to ensure that the course curriculum is current from an industry aspect. Its secondary role should encompass aid and assistance in all areas to support the curriculum, i.e. training aids, specialized equipment, instructors' professional development, etc.

The advisory committee meetings must be recorded and these minutes retained for a minimum of five years. The decisions reached must be sent to individuals involved with changes to the program, i.e. Transport Canada, provincial authorities and school officials.

9. Conversion Courses

Conversion courses may qualify for the credit toward the group, "fixed wing" or "rotary wing", experience requirements. They do not provide any credit toward the "category" experience requirements.

Conversion courses which meet all the requirements may receive a group experience credit of up to three times the actual time spent in training. The equipment requirements for a conversion course are similar to those of a basic training course, with the exception that only that material relative to the course subject need be provided.

The prerequisites for a conversion course should normally require that the applicant be the holder of an Aircraft Maintenance Engineer licence. Classes should normally consist of no more than 15 students.

10. Type Training Courses

This type of course provides no credit towards the experience requirements for an Aircraft Maintenance Engineer licence; however, successful completion of an approved type course is a mandatory requirement for certain type ratings.

(a) Prerequisites

While no particular prerequisites have been established for aircraft type courses, training organizations should establish criteria to ensure that the students are capable of understanding the course material.

(b) Curriculum

The curriculum for an aircraft type course must cover the entire aircraft including engine and propeller. An exception may be made in the case of engines, where it is intended that the student attend a separate course on this subject; however, in such a case, the course approval will be annotated to the effect that, to obtain the rating, the graduate must either complete a separate engine course, or hold a rating on another aircraft having the same engine. Course length will vary greatly according to the complexity of the type, but will normally be at least:

- (i) in the case of aircraft type course, between 70 and 240 hours.
- (ii) in the case of an engine type course, between 35 and 70 hours.

Examples of various aircraft types and the approximate amount of training required are given in Figure 1, together with a breakdown of subjects indicating the relative amount of training required by each aircraft system.

(c) Equipment

An aircraft type course must have a system in place to ensure a minimum of 5% hands-on training with any combination of the following instructional equipment:

- (i) a simulator or procedures trainer of a type compatible with or similar to the aircraft,
- (ii) an aircraft of the type, and/or
- (iii) training aid mock-ups appropriate to the type.

The purpose of the instructional equipment is to ensure that:

- (i) students can locate and identify all aircraft components, and
- (ii) students are able to effectively troubleshoot, inspect and carry out functional tests of all live aircraft systems from a cockpit perspective.

(d) Facilities

Shop facilities for aircraft type courses need not be as elaborate as basic training or conversion courses, since type courses are intended for experienced personnel. These courses must, however, have access to facilities appropriate to the course content requirements. Simulators must be located in a separate area, with adequate equipment for maintenance training. Hangar facilities must provide sufficient space to contain an aircraft and required shop equipment to either:

(i) disassemble, inspect, maintain, overhaul, adjust and assemble aircraft; or

(ii) locate, inspect, troubleshoot, functional test and explain various areas and components of an aircraft.

Training aids, mock-ups and/or simulators must be located in sufficient space to contain this equipment in an acceptable fashion for display, inspection and operation.

(e) Reference Material

The school must supply each student with a copy of a course training manual, containing all the subject material covered. The school must have procedures in place to ensure that the following are available and maintained in an up-to-date amended status:

- (i) maintenance,
- (ii) overhaul,
- (iii) structural,
- (iv) parts,
- (v) bulletins and/or instructions, and
- (vi) airworthiness directives.

(f) Class Size

Classes shall consist of not more than 15 students.

(g) Advisory Committee

A formally constituted advisory committee may not be required for type courses. However, the school must explain in detail how changes to the course are handled. This includes, but is not limited to curriculum content, equipment, facilities, etc.

APPROVED TRAINING ORGANIZATIONS FIGURE 1(A)

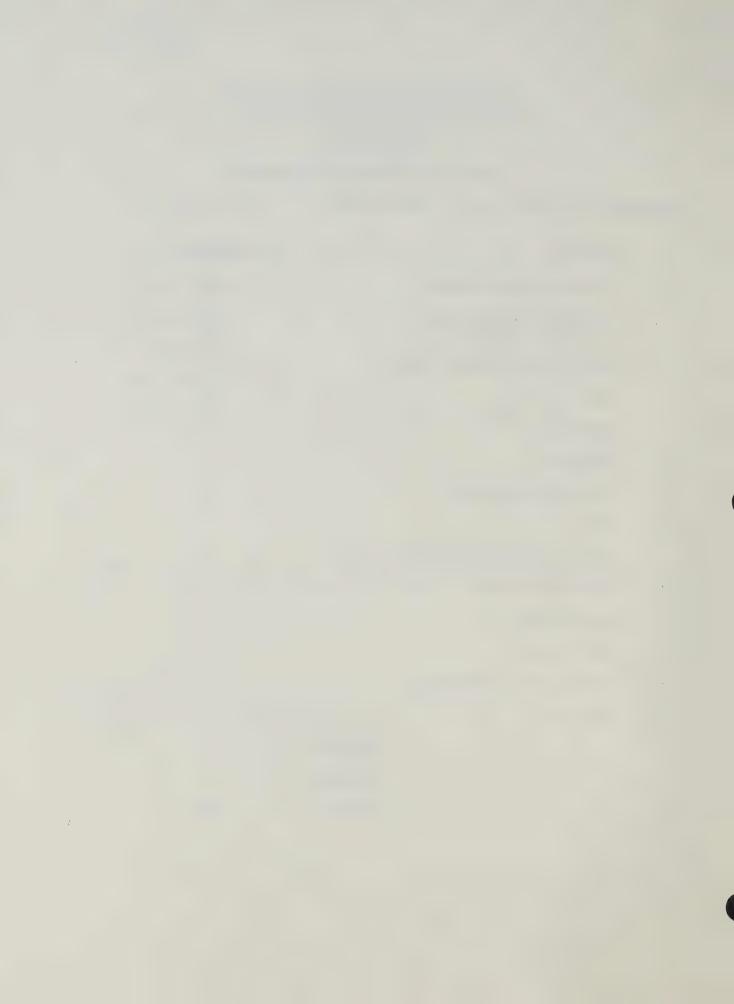
AIRCRAFT TYPE	NO. OF TRAINING HOURS REQUIRED
DEHAVILLAND DH8	90* - 120
GULFSTREAM GII	120* - 160
BOEING B727	160* - 200
AIRBUS A320	200* - 240
BELL BH206	70* - 90
BELL DH212	90* - 120

*NOTE: Engine courses may be required on a supplemental basis, relative to the individual student's previous experience.

APPROVED TRAINING ORGANIZATIONS FIGURE 1(B)

EXAMPLE OF HOURLY BREAKDOWN FALCON 50

SUBJECT		HOURS
Aircraft General and Structure		4
D.C. Electrical Power, Starting A.C. Power and Lighting		16
Hydraulic Power and Distribution	on	6
Flight Controls		16
Landing Gear		8
Fuel System		7
Power Plant/Thrust Reverser		6
APU		3
Bleed Air, Air Conditioning and Pressurization		8
Ice and Rain Protection		4
Oxygen System		2
Fire Protection		2
Pitot/Static and Air Data System		2
Examination		3
	Subtotal	87
	Simulator	3
	TOTAL	90



FOREWORD

The standards detailed in this Part of the Personnel Licensing Handbook relate only to the licensing of Air Traffic Controllers, and must not be construed as pertaining to employment conditions.

All civil Air Traffic Controllers in Canada are employed by the Department of Transport. Therefore, before any licence may be issued, a person shall have successfully undergone:

- (a) a medical examination as specified in the Personnel Licensing Handbook Volume 3 Medical Requirements;
- (b) selection and employment by the Department of Transport as an Air Traffic Controller-in-Training;
- (c) all necessary approved courses for Air Traffic Control training; and
- (d) practical training and testing at an actual Air Traffic Control unit.

Any person interested in employment as an Air Traffic Controller should contact the nearest office of the Public Service Commission.



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PART II

AIR TRAFFIC CONTROLLER LICENCE

CHAPTER 1

GENERAL INFORMATION

1. Definitions

- (a) "Air Traffic Controller", in this Part, means a person who is the holder of an Air Traffic Controller Licence issued under Part IV of the Air Regulations (hereinafter to be shown as ATC).
- (b) "Rating", in this Part, means an endorsement under Part XIII of an ATC Licence.
- (c) "Approved Course of Air Traffic Control Training", in this Part, means a course of theoretical and practical training, as set forth in the Air Traffic Control, Manual of Operations and approved by the Director General, Civil Aeronautics, including written examinations and a demonstration of skill.

2. <u>International Civil Aviation Organization (ICAO)</u>

Canada is a Contracting State to the International Civil Aviation Organization (ICAO) and ATC licences are generally in accord with the Standards and Recommended Practices contained in Annex I to the Convention. Canada, in one exception to ICAO Standards, requires the minimum age for the issue of an ATC licence to be 19 years.

3. <u>General Licensing Inquiries</u>

Inquiries with respect to Air Traffic Controller Licences should be made to the Department of Transport Regional Headquarters appropriate to the applicant's place of residence in Canada. The processing of applications, and the issuing of licences are administered by Regional Headquarters at the following locations:

ATLANTIC REGION

Regional Director Aviation Regulation Department of Transport

Postal Address P.O. Box 42 Moncton, New Brunswick ElC 8K6

Office Address 95 Foundry Street Moncton, New Brunswick E1C 5H7

CENTRAL REGION

Regional Director Aviation Regulation Department of Transport

Postal Address P.O. Box 8550 Winnipeg, Manitoba R3C 0P6

Office Address 333 Main Street Winnipeg, Manitoba R3C 0P6

OUEBEC REGION

Regional Director Aviation Licensing Department of Transport Montreal International Airport P.O. Box 500 Dorval, Quebec H9R 5P8

ONTARIO REGION

Regional Director Aviation Licensing Department of Transport 4900 Yonge Street Suite 300 Willowdale, Ontario M2N 6A5

WESTERN REGION

Regional Director Aviation Licensing Department of Transport Canada Place 11th Floor, 9700 Jasper Ave. Edmonton, Alberta T5J 4E6

PACIFIC REGION

Regional Director Aviation Licensing Department of Transport Suite 620 800 Burrard Street Vancouver, British Columbia V6Z 2J8

4. General Conditions

The following conditions apply to the issue of an ATC licence:

- (a) Citizenship An applicant's citizenship must be shown on his aviation personnel licence and must therefore be determined prior to issue of the licence.
- (b) Proof of Citizenship The following documents are acceptable as proof of citizenship
 - (i) a citizenship certificate;

(ii) a valid passport;

- (iii) a birth or baptismal certificate issued in Canada or in a State whose citizens do not require a passport to travel in Canada. A copy certified by the issuing State or duly notarized is acceptable;
- (iv) a Canadian Immigration Record and Visa, Form IMM 1000, issued to a landed immigrant by the Department of Employment and Immigration; and
- (v) an aviation personnel licence showing the citizenship of the holder and issued by the State of which he is a citizen.

(c) Language

(i) An applicant shall be competent in the use of the English language and shall have the ability to speak such language without accent or impediment which would adversely affect two-way radio communication for the exchange of safety and control messages in the aeronautical service.

- (ii) Where bilingual Air Traffic Service is provided, an applicant shall be competent in the use of the English and French language and shall have the ability to speak both languages without accent or impediment which would adversely affect two-way radio communication for the exchange of safety and control messages in the aeronautical service.
- (d) Tests and Examinations All tests and examinations for issuance of a licence shall be completed and an application submitted during the twelve month period immediately preceding the date of issue of a licence.
- (e) An Air Traffic Controller-in-Training shall obtain a "Restricted Radio-telephone Operator's Certificate" or a higher licence, to operate radio equipment at an aeronautical radio station.
- (f) Age An applicant shall be not less than nineteen years of age. When proof of age is required it may be provided in one of the following forms
 - (i) a Canadian citizenship certificate;
 - (ii) a birth certificate or copy thereof certified by the issuing authority, or a duly notarized copy thereof;
 - where a birth certificate cannot be produced a baptismal certificate supported by a statutory declaration in which the applicant declares his age will be accepted; or
 - (iv) a valid Canadian passport.

5. Medical Fitness

- (a) A medical examination required for the issue or revalidation of an aviation personnel permit or licence shall be conducted by a Department of Transport designated medical examiner in accordance with the Medical Standards for Civil Aviation Personnel Licensing. A candidate for issue or revalidation of an aviation personnel permit or licence requiring a medical examination should present himself to
 - (i) a medical examiner listed in the Personnel Licensing Handbook, Volume 3 Medical Requirements,
 - (ii) a Canadian Forces Regular Medical Officer provided the candidate being examined is either a regular member of the Canadian Forces, an Air Cadet or a civilian in residence on a Canadian Forces Base, or
 - (iii) in the case of a licence holder residing outside of Canada, a medical examiner appointed by the Licence Authority of a Member State of the International Civil Aviation Organization; and

(b) On completion of the medical examination and assessment of the medical examination report by the Department of Transport, the candidate will be informed of the results of this assessment by issue of a Licence Validation Certificate or by letter.

6. Licence Validation Certificate

- (a) When the holder of a licence undergoes a medical re-examination to extend the medical validity of his licence, he must present his Licence Validation Certificate to the medical examiner and ensure that the examiner endorses the result of the examination in the space provided for that purpose on the back of Form 26-0055.
- (b) Endorsement attesting to a satisfactory medical re-examination by a medical examiner listed in the Personnel Licensing Handbook, Volume 3 Medical Requirements or a Canadian Forces Regular Medical Officer will constitute revalidation of a licence until issue of a new Licence Validation Certificate by the Department of Transport or for a maximum period of sixty days (two calendar months) from the date of medical re-examination, whichever is the earlier.
- (c) To maintain continuous medical validity of a licence or permit, the holder should arrange to have his next medical examination completed during the last month of the medical validity period of the licence or permit. For example, a holder whose licence or permit is medically valid until October 1, should have his next medical examination during the month of September.
- 7. Medical Examination Requirements Issue and Re-Validation of Aviation Personnel Licences

The issue of a Licence Validation Certificate is subject to the receipt and satisfactory assessment of the medical reports, appropriate to the medical category desired, at intervals no less frequently than indicated and such additional information as may be required from time to time. Details of the medical examination requirements are continued in the Personnel Licensing Handbook, Volume 3. For ease of reference, these requirements are summarized in the "Table of Medical Examination Requirements", Appendix "A" to this Chapter.

8. Application

Application for the issue of a licence or endorsement of a rating or location shall be made on Form 26-0145 accompanied by the applicable progress report on Form 28-0130 or 28-0131. A sample of Form 26-0145 is in Part II, Chapter 4.

9. Replacement of Personnel Licence

(a) <u>Licence Lost or Destroyed</u>

Provided it is medically valid, a personnel licence that has been lost or destroyed may be replaced on application to the Regional Manager, Aviation Licensing accompanied by

(i) (ii)	a \$10.00 fee; and the following declara	ation:	
	"I her	reby certify that I am the holde	er of
	Permit/Licence Title	number	_ issued
		Transport. I declare that the said do I hereby apply for the replacer	
		O'	***
	Date	Signature of Applic	ant

NOTES:

- 1: It is a summary conviction offence to make a false representation.
- 2: In extenuating circumstances the Regional Manager, Aviation Licensing may waive payment of the fee.
- 3: Licence forms that have become separated at the fold are considered to be destroyed and should be replaced.

(b) <u>Change of Name - Marriage or Court Order</u>

The personnel licence of a person whose name has changed may be replaced without charge on application to the Regional Manager, Aviation Licensing. The application must be accompanied by proof of change of name either through the court or through marriage.

(c) Change of Name-Assumed

For personnel licensing purposes a person may use the name by which he is commonly known without a legal change of name. Applicants who wish to do so are required to submit the following declaration:

Declaration of Name for Personnel Licences

"I am the person whose former name isattached document (birth certificate, baptismal certificate, name that I am known by and commonly use and that I w personnel licence is sued by the Minister of I understand that before further che can be made for licensing purposes, I must submit proof of the Government of the Province in which I am residing at the	, passport, etc). The rish to appear on my of Transport in ange in my name change of name from
	11
Date Signed (Assumed na	ame)

(d) Change of Citizenship

The personnel licence of a person whose citizenship has changed may be replaced without charge on application to the Regional Manager, Aviation Licensing. The application must be accompanied by proof of citizenship (citizenship certificate, valid passport).

Appendix "A" Chapter 1

TABLE OF MEDICAL EXAMINATION REQUIREMENTS

	FREQUENCY OF PERIODIC MEDICAL DOCUMENTATION				ATION
LICENCE DESIRED	MINIMUM MEDICAL CATEGORY REQUIRED	MEDICAL EXAMINATION REPORT (MER) (i)	ELECTRO- CARDIO- GRAM (ECG) (ii) (v)	AUDIOGRAM (iii) (v)	CHEST X-RAY (iv)
- Airline Transport - Senior Commercial - Commercial except Ultra-Light Aeroplane	CAT 1	- every 12 months - after age 40, every 6 months	- initial medical examination - within 2 years of each medical examination between age 30-40 - within 12 months of each medical examination after age 40	- initial medical examination - within 5 years of the first medical examination after age 55 - other times when clinically indicated	- not required unless clinically indicated
- Air Traffic Controller - Flight Navigator - Flight Engineer	CAT 2	- every 12 months			- not required unless clinically indicated
Private Pilot except Ultra- light Aeroplane - Balloon Pilot - Commercial Pilot, Ultra-Light Aeroplane	CAT 3	- every 24 months - after age 40, every 12 months - every 60 months	- within 5 years of each medical examination after age 40	- not required unless clinically indicated	- not required unless clinically indicated
- Glider Pilot - Private Pilot, Ultra-Light Aeroplane	CAT 4	- every 60 months	- not required unless clinically indicated	- not required unless clinically indicated	- not required unless clinically indicated

- (i) The medical examination shall be completed by a designated Civil Aviation Medical Examiner. The period of validity of the medical examination is calculated from the first day of the month following the date of medical examination.
- (ii) Unless otherwise specified an electrocardiogram shall be a standard 12 lead fasting electrocardiogram.
- (iii) When an electrocardiogram or audiogram is required "at the next examination" it should be submitted either with the next report of medical examination or within the 30 days preceding the date of medical examination.
- (iv) In order for an electrocardiogram or audiogram to be accepted as meeting the above requirements it shall normally be forwarded for receipt by TC, within 60 days of the date of the electrocardiogram or audiogram.

NOTE: Unless an applicant has been tested satisfactorily during the preceding five years, he shall be tested on a pure tone audiometer at the initial examination for a Medical Category 1 or 2 and at the first medical examination after age 55.

CHAPTER 2

AIR TRAFFIC CONTROLLER LICENCE

1. Age

An applicant shall be not less than nineteen years of age.

2. Medical Fitness and Re-Validation

An applicant shall have completed the medical examination requirements in accordance with the Medical Standards for Civil Aviation Personnel Licensing and be in possession of Category 1 or 2 Licence Validation Certificate valid for an Air Traffic Controller Licence.

The normal medical validity period for a licence holder is 12 months. <u>Re-validation</u> of the licence is accomplished by satisfactory completion of the medical examination requirements and issue of a new Category 1 or 2 Licence Validation Certificate.

See Part II, Chapter 1, Appendix "A" for Table of Medical Examination Requirements.

3. Knowledge

An applicant shall have successfully completed written examinations on:

- (a) Air Regulations and Air Navigation Orders;
- (b) Air Traffic Control Manual of Operations;
- (c) the principles of air navigation, including the use of altimeters;
- (d) the use and limitations of radio, visual and other aids to air navigation;
- (e) meteorology, including an appreciation of synoptic charts, weather reports and forecasts;
- (f) the performance of various aircraft types relative to air traffic control procedures, including the avoidance of wake turbulence; and
- (g) the basic principles, use and limitations of radar equipment.

4. <u>Experience</u>

An applicant shall have successfully completed an approved course of ATC training and have met all requirements for the endorsement of one of the Ratings detailed in Part II, Chapter 3.

5. Skill

An applicant shall have satisfied the skill requirement for the endorsement of the Rating applied for as detailed in Part II, Chapter 3.

6. Privileges

ATC Licence privileges, which relate to the Rating(s) held, are detailed for the individual ratings in Part II, Chapter 3.

CHAPTER 3

RATINGS

1. General

(a) Ratings

Ratings to an Air Traffic Controller Licence, which may be endorsed for one or more specified locations, comprise:

- (i) Airport Control;
- (ii) Terminal Control; and
- (iii) Area Control.

Prior to the issue of an Air Traffic Controller Licence, and before any privileges may be exercised, an applicant shall have met all requirements for the endorsement of a particular rating at a specific location.

(b) Validity

Any rating to an Air Traffic Controller Licence shall become invalid when the holder has not exercised the attaching privileges for a period as specified in the ATS Manual of Operations, and the holder must re-establish competency prior to again exercising such privileges.

(c) Skill

An applicant shall have demonstrated ability to perform those functions applicable to the privileges to be granted.

2. Airport Control Rating

(a) Knowledge

An applicant for an Airport Control Rating shall have successfully completed an approved course of airport control and have demonstrated knowledge of the particular location for which the rating is desired through successful completion of written examinations on:

- (i) airport and control zone rules and traffic characteristics;
- (ii) co-ordination procedures between the airport control tower unit and other traffic control units;
- (iii) meteorological phenomena peculiar to that airport;
- (iv) the alerting of emergency services;

(v) electronic aids to air traffic control; and

(vi) terrain prominent landmarks and air navigation facilities within a 25 nautical mile radius of the centre of the airport.

(b) Experience

During the twelve months preceding the endorsement of an Airport Control Rating, an applicant shall have:

(i) successfully completed an approved course of ATC training; and

(ii) served satisfactorily under the supervision of a qualified airport controller for:

- (A) normally not less than three months in the case of the initial issue of an ATC licence:
- (B) normally not less than one month in the case of the initial issue of an Airport Control Rating to the holder of an ATC licence endorsed with a Terminal Control or Area Control Rating;

(C) a period of time as necessary to demonstrate competence in the case of the endorsement of an additional location to the holder of an ATC licence with an Airport Control Rating.

(c) Privileges

The holder of a valid Air Traffic Controller Licence with an Airport Control Rating may provide, or supervise the provision of, air traffic services at the airport(s) for which the rating is held.

3. <u>Terminal Control Rating</u>

(a) Knowledge

An applicant for a Terminal Control Rating shall have successfully completed an approved course of IFR control and have demonstrated knowledge of the particular location for which the rating is desired through successful completion of written examinations on:

- (i) control zone and terminal control area rules and traffic characteristics;
- (ii) co-ordination procedures between the terminal control unit and other air traffic control units;
- (iii) meteorological phenomena peculiar to that terminal control area;
- (iv) the alerting of emergency services;

(v) electronic aids to air traffic control;

- (vi) air navigation facilities within, and immediately adjacent to, that terminal control area; and
- (vii) holding, approach, missed approach and departure procedures.

(b) Experience

During the twelve months preceding the endorsement of a Terminal Control Rating, an applicant shall have:

(i) successfully completed an approved course of ATC training; and

- (ii) served satisfactorily under the supervision of a qualified terminal controller for:
 - (A) normally not less than three months in the case of the initial issue of an ATC licence;
 - (B) normally not less than one month in the case of the initial issue of a Terminal Control Rating to the holder of an ATC licence endorsed with an Airport Control of Area Control Rating; or
 - (C) a period of time as necessary to demonstrate competence in the case of the endorsement of an additional location to the holder of an ATC Licence with a Terminal Control Rating.

(c) Privileges

The holder of a valid Air Traffic Controller Licence with a Terminal Control Rating may provide, or supervise the provision of, air traffic services within the Terminal Control Area for which the rating is held.

4. Area Control Rating

(a) Knowledge

An applicant for an Area Control Rating shall have successfully completed an approved course of IFR Control and have demonstrated knowledge of the particular location for which the rating is desired through successful completion of written examinations on:

- (i) the rules applicable to all airspace under the jurisdiction of that area control centre;
- (ii) co-ordination procedures between the area control centre and other air traffic control units;

- (iii) the location and alerting of emergency services;
- (iv) electronic aids to air traffic control;
- (v) air navigation facilities underlying, and immediately adjacent to, the airspace under the jurisdiction of that area control centre; and
- (vi) holding, approach, missed approach and departure procedures.

(b) Experience

During the twelve months preceding the endorsement of an Area Control Rating, an applicant shall have:

- (i) successfully completed an approved course of ATC training; and
- (ii) served satisfactorily under the supervision of a qualified area controller for:
 - (A) normally not less that three months in the case of the initial issue of an ATC Licence;
 - (B) normally not less than two months in the case of the initial issue of an Area Control Rating to the holder of an ATC Licence endorsed with an Airport Control or Terminal Control Rating; or
 - (C) a period of time as necessary to demonstrate competence in the case of the endorsement of an additional location to the holder of an ATC Licence with an Area Control Rating.

(c) Privileges

The holder of a valid Air Traffic Controller Licence with an Area Control Rating may provide, or supervise the provision of, air traffic services within the airspace under the jurisdiction of the Area Control Centre for which the rating is held.

CHAPTER 4

FORMS

Form 26-0145, Air Traffic Controller Licence Application is referred to in this Handbook and is reproduced for the reference and guidance of all concerned.

